

REMARKS

By this amendment, pending claims 39, 41, 43 and 45 are cancelled and new claims 46-57 are added. Support for new independent claims 46, 49, 52 and 55 can be found, respectively, in claims 39, 40, 43 and 45 as submitted in the Reply dated March 4, 2005, as well as in the specification from pages 14-15, lines 21-6, and in Figure 3. Support for new claims 47, 50, 53 and 56 can be found at pages 14-15, lines 21-6. Finally, support for new claims 48, 51, 54 and 57 can be found at page 15, lines 7-20 of the specification. Claims 46-57 are presented for further examination.

Initially, the specification is amended to correct an obvious error resulting from the translation of the Japanese priority document. In the paragraph beginning at page 15, line 7, the time constant of 200 seconds has been changed to 200 milliseconds. Those with ordinary skill in the art would recognize that a time constant of 200 seconds (3 minutes, 20 seconds) is excessively long to be used in vehicle or engine control. Further, the 200 millisecond time constant is consistent with the millisecond decision periods disclosed at page 26, line 16 of the specification.

The rejection of claims 41 and 45 under 35 U.S.C. § 102(b) over Akishino, US 5,088,043, and the rejection of claims 39 and 43 under 35 U.S.C. § 103(a) over Togai, US 5,069,181 in view of Shimada, US 5,233,530 have been rendered moot by the cancellation of these claims.

According to the present invention, a vehicle may be operated in either a first running mode or a second running mode. The first running mode represents a normal drive mode wherein the vehicle is controlled by a driver vis-à-vis the depression of an accelerator pedal. The second running mode represents an automatic drive mode such as a cruise control mode (constant vehicle speed mode) or a constant headway distance control mode. The first target value of the first running mode is determined on the basis of a depressed accelerator pedal stroke. In the example of a constant headway distance control

mode, the second target value of the second running mode is determined from an environmental operating condition ahead of the running vehicle.

During a transient state of the vehicle when the first running mode (normal drive mode) is to be changed to the second running mode (automatic drive mode), the first target value (T_{tar1}) is changed to the second target value (T_{tar2}). If the difference between the first target value and the second target value is large, an undesirable jolt or shudder may be felt within the vehicle due to the sharp change of the target values.

In order to reduce or eliminate this undesirable result, each of the independent claims requires that during a transient state of the vehicle when the first running mode is changed to the second running mode, the target value of the torque (driving shaft torque or engine torque) is changed smoothly from the first target value (T_{tar1}) to the second target value (T_{tar2}) (see, e.g., page 14, line 3-page 15, line 6 of the specification).

Specifically, as required by dependent claims 47, 50, 53 and 56, the vehicle or engine can be controlled by a third target value (T_{tar}) that is gradually varied from the first target value to the second target value during the transient period. The third target value is different from the first and second target values.

Further, each of the independent claims requires that during a transient state of the vehicle when the second running mode is changed to the first running mode, the second target value (T_{tar2}) is changed instantaneously to the first target value (T_{tar1}) (see, e.g., page 15, lines 7-20 of the specification and Figure 4).

None of the cited references disclose or suggest the claimed transient operations. The new claims require that when the first running mode (normal drive mode) is changed to the second running mode (automatic drive mode), the target value of the torque is changed smoothly from the first target value to the second target value.

Akishino discloses that when a treadled condition detection signal is received, the running condition selecting section stops the development of the

constant speed running designating signal and the accelerated running designating signal (column 5, lines 13-18). However, Akishino fails to disclose that a second target value is changed instantaneously to a first target value.

Moreover, Akishino, which relates to automatic cruise mode control, does not disclose or suggest a smooth change of a first target value to a second target value when a normal drive mode is changed to an automatic drive mode.

Applicants note that Akishino discloses smooth acceleration (or deceleration) when a running condition (first automatic drive mode) is changed over to accelerated running (second automatic drive mode) or vice versa (columns 16-17, lines 45-23). However, the vehicle operation described by Akishino is between two automatic drive modes and not between a normal drive mode and an automatic drive mode, as claimed. Accordingly, Akishino does not anticipate or render obvious the new claims.

Togai discloses that a target torque of a driving shaft is determined in accordance with the pedaling stoke of an accelerator pedal (abstract). However, as acknowledged in the Office Action, Togai is silent as to a second running mode (automatic drive mode). Thus, Togai cannot reasonably disclose or suggest the claimed transient operations (changing a second running mode to a first running mode, or changing a first running mode to a second running mode).

As with Akishino, Shimada relates to automatic cruise mode control when the accelerator pedal and the brake pedal are not in a treadled condition (see column 15, lines 1-15 of Shimada and columns 15-16, lines 57-3 of Akishino). Because Shimada does not disclose or suggest a smooth change of a first target value to a second target value when a normal drive mode is changed to an automatic drive mode, neither Shimada nor the combination of Shimada with Togai can anticipate or render obvious the claimed invention.

It is submitted that the difference between the claimed subject matter and the prior art are such that the claimed subject matter, as a whole, would not have been obvious at the time the invention was made to person having ordinary skill in the art. In view of the foregoing, the application is respectfully submitted

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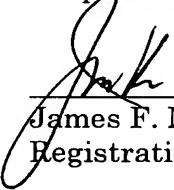
to be in condition for allowance, and prompt favorable action thereon is earnestly solicited.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned at (202) 624-2675 would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #056203.44307C3).

Respectfully submitted,

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